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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/024,057 | 12/17/2001 | Stephen W. Montgomery | 884.569US1 | 5312 |
| 21186 | 7590 | 05/19/2004 | | |
| SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402 | | | | |
| EXAMINER MAYEKAR, KISHOR | | | | |
| ART UNIT | | PAPER NUMBER | | |
| 1753 | | | | |

DATE MAILED: 05/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/024,057

Applicant(s)

MONTGOMERY ET AL.

Examiner

Kishor Mayekar

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 3/19/04.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on March 19, 2004 has been entered.

Claim Objections

2. Claim 15 is objected to because it is not end with a period. Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claim 12 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 12, the phrase "the thermal interface material billet" lacks antecedent basis.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2 and 5-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over YANIV et al. (6,312,303) in view of NEUGEBAUER et al. (5,102,824). YANIV's invention is directed to a method for aligning particles within a host phase of a material under an external force. YANIV discloses that the particles are carbon nanotubes (claim 3); the host phase could be a UV curable binder (col. 2, lines 30-33) and the curing of the aligned host phase (col. 3, lines 1-6); the external force is an electric field (claim 13). The difference between YANIV and the above claims is the curing while applying the electric field. NEGEBAUER shows in a method of electrically aligning particles in a host phase the step of curing the aligning host phase while under the influence of the electrical field (claim 5) in addition to the steps of aligning under the electric field and curing without the electric field (claim 3). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified YANIV's teachings as shown by NEGEBAUER because NEGEBAUER discloses that the particles are both fix the particles in the host phase by curing with or without the influence of the electric field.

As to the subject matter of claims 2, 10 and 11, YANIV discloses the subject matters in Fig. 7.

As to the subject matters of claims 12 and 15, the step of adjusting the spacing would have been within the level of ordinary skill in the art because the step is necessary in the producing of the final product within a specified specification.

7. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over YANIV '303 in view of NEUGEBAUER '824 as applied to claims 1, 2 and 5-15 above, and further in view of MARRA et al. (5,972,265). The difference between the references as applied above and the instant claims is the use of a conveyor onto which the slurry is dispensed. MARRA shows in a method for producing composites containing particles in a binder the provision of a conveyor onto which a slurry containing particles and binders are dispensed (see Fig. 2). The subject matter as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the references' teachings as shown by MARRA because it has been held that it is within the level of ordinary skill to operate a process continuously. *In re Dilnot* 138 USPQ 248; *In re Korpi* 73 USPQ 229; *In re Lincoln* 53 USPQ 51.

8. Claims 16-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over YANIV '303 in view of MARRA '265 for the same reason as set forth in paragraph #7 above.

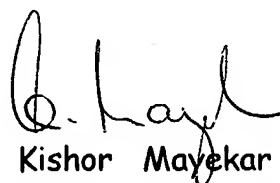
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kishor Mayekar whose telephone number is (571) 272-1339. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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A handwritten signature in black ink, appearing to read 'K. Mayekar', is positioned above the printed name.

Kishor Mayekar
Primary Examiner
Art Unit 1753